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a digest of timely information

Editor - Captain F. W. Farrar. (MC). U.S.N.

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Recent Advances in the Use of Curare in Clinical Practice: Tubocurarine, which is an alkaloid of curare and has the characteristic physiological action of curare, belongs to a group of compounds known as quaternary ammonium salts. In general, these salts exhibit the property of paralyzing neuromuscular conduction at the myoneural junction. The majority of these salts, however, have other properties which overshadow and obscure this action. Almost alone among them, tubocurarine, in certain concentrations, has a purely myoneural-junction effect. This myoneural-junction action is most probably related to the configuration of the molecule rather than merely to chemical composition. Acetyl choline and prostigmin have a similar molecular configuration, and under certain circumstances can be made to exert a curariform effect, and conversely, curare can be made to cause a muscle twitch. The physical chemists have shown that molecules of this stereochemic type exert specific effects on vital membrane structure.

The Nature of Curare Block. Here is one line of reasoning based on experimental facts. The myoneural junction is an excitable membrane. A transmitter substance, whether it be acetyl choline or local action currents, induces a potential by actively depolarizing the junctional region. Normally, this depolarization reaches a critical value and produces the muscle spike by spreading electronically and depolarizing the neighboring area. In fully curarized muscle, this so-called end-plate potential rises to a subthreshold level and then decays without initiating a muscle response. If curare merely paralyzed skeletal muscle in this manner, it would have little clinical value in the type of cases to be discussed here. However, the size of the end-plate potential depends, to some extent, on the concentration of drug. Therefore, the degree of block can be controlled. Frequencies above a critical range, or abnormally sustained, can be blocked, but those of different characteristics will still evoke a normal muscle twitch. Since the normal excitatory state at the junctional membrane depends on rapid reversibility of polarization, any mechanism which either reduces this capacity or maintains the membrane in a single phase for abnormal periods of time acts as a depressant. Such a process may explain why in certain concentrations acetyl choline and prostigmin are depressants of neuromuscular conduction.

These considerations underlie the present day concept of curare therapy. No attempt is made to paralyze the myoneural junction, but merely to create a block to the abnormal impulses imposed upon the myoneural junction by the disease process. It is thus perfectly feasible to obtain a therapeutic effect without loss of voluntary power.

Therapeutic Applications of Curare Action. In an attempt to avoid the toxic responses and prolong the desired effect, various vehicles were tried

in this study. A suspension of d-tubocurarine chloride in white wax and oil proved best. Percentage composition was based on clinical assay in an attempt to achieve adequate peripheral action without superimposed central phenomena or paralysis. The proportions in use today are 3 per cent tubocurarine in 4.8 per cent wax in peanut oil. One cubic centimeter of the suspension contains the equivalent of 175 units of standard curare. The alkaloid is stable and not affected by sterilization. It is well standardized and its action predictable, milligram for milligram. The suspension is given either by the subcutaneous or intramuscular route.

The present series consists of 1500 injections ranging from 0.4 to 2.5 c.c. of suspension in a group of 200 patients. Dosage requirement seems only vaguely related to body weight, but directly to disease entity. Duration of effect has been from 24 to 168 hours, and likewise related to the type of pathology. It is obvious that the effect seems prolonged over the period that curare is present in the body in perceptible concentrations. This curious fact is being investigated in the laboratory, but unfortunately work is slow because no adequate method of blood level determination has been discovered.

The following types of pathology are represented in this series:

I. Muscle Spasm, as in: (a) direct trauma to muscle, (b) low back syndrome, (c) orthopedic deformities with reflex spasm, (d) myositis, (e) arthritis.

II. Spasticity, as in: (a) degenerative diseases of the central nervous system, (1) multiple sclerosis, (2) disseminated sclerosis, (3) familial lateral sclerosis, (b) spinal cord injury, (c) cerebrovascular disease, (d) tumors of the brain and spinal cord.

III. Spasticity with dystonic features (Little's disease, cerebral diplegia).

IV. Dystonia and Athetosis.

V. Rigidity, as in Parkinson's syndrome.

Therapeutic Results:

I. Muscle Spasm. Since curare is a physiological muscle relaxant, it is not surprising that spasm responds so well. The vicious cycle of pain and muscle spasm is well known, as is the rapid relief afforded by any means which serves to break up this cycle. In this series, the authors have seen all degrees of spasm yield to treatment, although where the pain was based on root compression, residual root pain remained after complete reduction of

reflex muscle spasm. This response is useful diagnostically in ruling out root compression as a causative factor in a clinical picture. If, after treatment, pain of radicular type persists in spite of marked diminution of spasm and diffuse pain, it is probable that root compression is the underlying cause. On the other hand, in orthopedic disturbances with reactive spasm, all the pain except focal pain or tenderness at the site of disease seems to disappear.

A case demonstrating the value of curare in oil in muscle spasm accompanying low back syndrome is cited:

A 48 year old male, member of a medical college faculty, over a period of years has had occasional lumbosacral pain with moderate muscle spasm. In recent years the patient has grown much heavier and has led a more sedentary existence. In February, 1946, he began to note recurrence of lumbosacral pain. This became increasingly severe over a period of days and the patient was admitted to the hospital. On mild sedation, with bed boards, and with rather haphazard traction, he improved enough in three days to be discharged. X-ray examination had revealed an unstable lumbosacral joint with proliferative arthritis in the joint region. Two days later the pain had increased to its former severity and he was again hospitalized. The muscle spasm at this time was more pronounced, and the patient was in constant severe discomfort in all positions. Traction was reinstituted without relief. Morphia and sedation were used in large doses. The orthopedic attendant advised a body spica, full length, and this was applied. The patient complained more and more bitterly, remained sleepless and unrelieved by any form of medication. At the end of four days spinal anesthesia was contemplated as a means of reducing the marked spasm of the muscles of the entire lower back region with the associated severe pain. However, a trial of curare in oil was agreed upon instead. One c.c. of the suspension was given in the right buttock. Two hours later the patient stated that his back muscles had relaxed, and at the same time, the accompanying pain had vanished. The reduction of muscle spasm was immediately demonstrable on examination. The patient now noted only focal pain on motion at the lumbosacral articulation. Relief of pain was followed by adequate rest without medication. The patient became less tense, began to eat, and regain his normal equilibrium. However, by the third day, in dread of a recurrence, he requested a second injection. The same dose of drug was given at this time and again three days later. The spasm never recurred, and the patient's subsequent convalescence was completely uneventful. A back brace was prescribed by the orthopedist and when this was fitted, the patient was allowed up and discharged from the hospital.

II. Spasticity. With true spasticity it is generally possible to increase motor efficiency by eliminating the increased excitability of the stretch reflex.

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Whatever the patient's motor power, it is always possible to increase its utilization by reducing the spastic element. Voluntary power is unaffected at dosage levels sufficient to relieve spasticity. In every case in the series, gait was improved by this unmasking effect. Retraining enhanced this new level of performance strikingly. It was of interest to hear the patients repeatedly describe the degree of muscular relaxation present after the first injection. Those patients with spastic lower limbs were able to wiggle their toes or perform heel to shin tests previously impossible. This suppleness, once regained, survived in spite of termination of treatment, even though there may have been a return of considerable degree of general spasticity.

A case illustrating the effect in spasticity secondary to degenerative disease of the central nervous system is illustrative:

A 38 year old male was admitted to the Neurological Institute with chief complaint of difficulty in walking. For the last 14 years he had noted increasing spasticity of the lower extremities, along with weakness, especially on the left side. One brother and a sister had the same complaints. On examination, the patient walked with a marked scissors gait, his feet crossing on forward motion. He had pronounced adductor spasm. He could not flex and elevate his left leg on forward motion but instead dragged it forward. His extremities had a paucity of associated movement. He touched the floor only with his toes during ambulation, and he held his heels three inches above the floor even with effort to walk on the entire foot. He threw his trunk forward with an increase in lumbar lordosis. Clonus and increased reflexes were noted. A diagnosis of familial lateral sclerosis was made. The patient was started on 1 c.c. of curare in oil twice weekly and continued on it for four weeks. He was given re-education exercises in walking daily. Adductor spasm was rapidly reduced. Electromyograms demonstrated a drop in hyperexcitability of the stretch reflex in the lower extremities. The patient noted increased flexibility and could perform knee chest exercises and wiggle his toes freely for the first time in years. His gait rapidly changed with reduced scissors tendency and with both heels fully touching the ground in walking. In four weeks the dose was dropped to 0.6 c.c. weekly which seemed to maintain the patient at an efficient level of response. The patient was discharged in six weeks on weekly doses of 0.6 c.c. administered on an out-patient basis. At the time of discharge, analysis of moving pictures of the patient's gait revealed striking improvement. The exaggerated lordosis was gone and at rest the patient stood with legs apart and toes pointed outward. Passive stretching of the adductors did not initiate abnormal responses. In walking, associated movements had returned, and both feet were firmly on the ground without the previous marked inversion tendency.

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In spastic paraplegia, the use of curare in oil has proved a valuable adjunct to treatment. These cases have always been most difficult to handle, and no adequate measure has yet been described which will alleviate the distressing reflex manifestations of this condition with complete success. However, it has been possible to: (1) reduce mass movements and thus aid healing of decubiti and prevent sudden expulsion of urine, (2) prevent contractures, and (3) permit active physiotherapy without acceleration of reflex spasm.

In spastic paraparesis, the results are even more successful. Since there is residual motor power, surgical measures designed to relieve spasticity take a toll in reducing voluntary power. It is here that curare therapy proves most valuable, by relieving crippling spasticity without sacrificing motor power. A series of these cases with an analysis of results has previously been reported.

In spasticity, the duration of beneficial effect is usually of long duration and in general, patients do not return to their original level of dysfunction when therapy is discontinued.

III. Birth injuries, cerebral diplegia or spasticity with dystonic features. Through the use of curare in oil better training of the remnants of motor activity can be achieved through the reduction of abnormal activity, and as a result, the increased range of motion prevents further fixation deformity or contracture. Unlike surgical procedures designed to this end, it is unnecessary to destroy innervation or reduce the number of functioning motor elements contributing to the deformity. Effective diminution in abnormal motor activity can be obtained without perceptible loss of motor power. By objective standards the improvement in motor performance is striking. The same tremendous drive which characterizes the usual efforts of these patients now pushes their performance levels forward at rapid rates.

Improvement can be expected in the following sequence: (1) speech, (2) ability to sit quietly, (3) gait, and (4) eating, writing, and performance of all skilled motor activities. These patients have maintained their improvement on doses twice weekly.

IV. Dystonia and Athetosis. It has been possible here to: (1) reduce spontaneous movements so that patients can sit quietly for reasonable periods, (2) make active exercise and motor training possible, often for the first time, and (3) improve sleep.

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V. Rigidity as in Parkinson's Disease. Efficacy of treatment in these cases is most difficult to evaluate. It can be definitely stated that rigidity is an indication, tremor not. Rigidity associated with extreme discomfort, immobility, and beginning contracture can be partially alleviated. Sleep is invariably improved; this means much to Parkinsonians. Pain associated with long standing muscle tension can be influenced to a gratifying degree. In rigidity there is, however, a wide disparity in response, and in dosage tolerated.

It is not surprising that there should be such a wide variance between the effects in spasticity and in rigidity. Spasticity depends upon a hyper-excitability of reflex mechanism, such as the stretch reflex, whereas rigidity is a function of simultaneous innervation of agonists and antagonists in addition to reflex mechanisms.

General Observations. Patients almost invariably note a pleasurable feeling of relaxation within two hours after injection. Under favorable conditions, in fact, most of them doze during this period. There is an associated fall in systolic pressure, averaging 20 points, which is related to muscle relaxation, and not a specific vascular effect.

The general sedative effect has been made use of in the treatment of a series of patients showing motor acceleration on a psychiatric basis. The early results are very interesting, but unfortunately, inconclusive at this time.

The author states that he and his associates have seen no side effects of clinical significance occur within what they consider their therapeutic dosage range. Once concentrations pass a critical level, however, central effects supervene with mental confusion and a feeling of marked tenseness in addition to the classical toxic signs.

There have been no toxic effects on any organic system over periods of time, and no changes in body economy or general well being. No tendency to habituation has appeared in this series, although one patient has had more than 75 injections. Contraindications specifically are: (1) any myasthenic tendency and (2) kidney disease. Since curare is eliminated largely unchanged in the urine, poor renal function conceivably could elevate blood concentrations to a dangerous degree.

In summary, an improved vehicle along with a well standardized drug has permitted the author and co-workers to exploit the physiological properties of curare. In a series of 1500 injections in various syndromes, no alarming toxic reactions have occurred. The major number of patients have been

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ambulatory and at their normal occupations during treatment. In therapeutic dosage range, the drug has been singularly free of side effects, and has shown no tendency to disturb the normal body economy or cause habituation. Statistically, spasm, spasticity, and rigidity are affected in order of decreasing efficiency. Dosage levels are strikingly related to the degree of motor acceleration. Duration of effect also seems inversely proportionate to the degree of motor spontaneous activity.

On the basis of this, and further studies, it is hoped that the usefulness and safety of this tool may be increased. (Bull. N.Y. Acad. Med., Oct. '46 - Schlesinger)

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Aminophylline in Biliary Colic: The results from the use of 0.5 Gm. of aminophylline given slowly by vein to eleven consecutive patients with biliary colic in a hospital emergency room were evaluated and compared with other drugs commonly used for the relief of pain in this condition.

In general, nitroglycerin, erythrol tetranitrate, and atropine were tried first. When no relief was obtained after a suitable length of time, morphine and pantapon were used. When relief was still not obtained, aminophylline was administered.

The results showed that biliary colic was not relieved by the other drugs as used, but that in ten of the eleven patients studied relief occurred within five minutes after giving aminophylline, the use of which was not associated with any noticeable toxic effects. In the one patient in whom aminophylline failed to give relief and in whom morphine and atropine were effective, a cholecystitis without stones and with numerous pericholecystic adhesions was found at operation. Some patients in whom papaverine was used experienced varying degrees of relief, but the full severity of the pain returned soon.

The author considers that from the results obtained, aminophylline in the treatment of biliary colic with associated spasm of the cystic or common ducts is most useful and is the drug of choice.

A number of the patients treated for biliary colic in the emergency room were able to leave after the intravenous administration of aminophylline.

The author rates morphine and its derivatives as poor drugs for the relief of biliary spasm. He also points out that aminophylline effects no relief of pain following surgery in these patients. (Am. J. Surg., Nov. '46 - Cole)

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Rodent Mite a Vector in Rickettsialpox: The purpose of this paper is to report the isolation of a rickettsia from each of two pools of mites (Allodermanyssus sanguineus Hirst, a rodent ectoparasite) collected in a housing development in New York, N. Y., where more than 80 cases of rickettsialpox have occurred.

The presence of A. sanguineus in the housing development was discovered in the last week of July 1946 by one of the authors. The presence of large numbers of house mice (Mus musculus), a concomitant infestation with a blood-sucking mite, both previously reported, and consistent clinical and epidemiological features led to the establishment of a field laboratory in the involved housing development for the purpose of studying the mice and the mites as a possible reservoir and vector, respectively, of the disease.

Several hundred specimens of A. sanguineus in various stages of development and engorgement were collected. Some of the mites were found on freshly trapped house mice - in one instance 10 mites were found feeding on the rump of a young mouse. The majority of the mites, however, were found crawling on the external walls of basement incinerators. It was not unusual to collect as many as 100 mites from the walls of a single incinerator. Many of the mites were fully engorged and bright red in color at the time of collection. Typical mammalian erythrocytes were found in smears of these freshly engorged mites. No other rodents or rodent parasites were found at this location.

It may be noted, moreover, that in two widely separated apartment developments in New York where cases of rickettsialpox have occurred, a careful search established the presence of large numbers of mice and mites (A. sanguineus).

One of these workers developed a typical clinical attack of rickettsialpox three weeks after collecting and processing large numbers of mites. He was not aware of being bitten until he observed the initial lesion 7 days before the onset of fever.

In the course of the study a rickettsia (mite strain No. 1) was recovered from a saline suspension of the tissues of mites (Allodermanyssus sanguineus). A rickettsia (mite strain No. 2), which is morphologically, culturally, and serologically indistinguishable from mite strain No. 1, was also isolated from a mouse "bitten" by A. sanguineus.

The behavior of the two mite strains in producing disease in guinea pigs, mice, and chick embryos, and as antigens in the complement-fixation test would seem to establish them as identical with the M.K. strain of rickettsialpox. (This strain was formerly isolated from M.K., a patient, as previously reported.)

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Further evidence of this identity has been provided by the solid immunity afforded guinea pigs by rickettsialpox against one of the mite strains.

The recovery of apparently identical strains of rickettsia from a man ill with rickettsialpox and from bloodsucking mites collected from the domicile of the same man indicates that human infection is acquired from the mites, probably through biting.

The isolation of this agent from mites has established further its characteristics as a microorganism of the rickettsial group. (Pub. Health Reps., Nov. 22, '46 - Huebner et al.)

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A Reverse Approach to the Fluorine-Dental Caries Relationship: The usual approach in the study of the relationship of fluorine to dental caries has been that fluorine at and above 1 p.p.m. in a water supply indicated a low dental caries rate - a rate that has been found to be consistently about three carious teeth per person in those native to, and of continuous residence in, a community using such a water supply. The reverse approach set forth in this study is of particular interest in that a high caries rate in a community has been used as an index of a low fluorine content in the public water supply.

This study was brought about by repeated reports from Montrose, Colo., that the dental caries rate was extremely high, but that the city water supply contained 1.4 p.p.m. of fluorine. The principal source of the Montrose city water supply is Cimarron Creek, but during the summer it is augmented by water from the Gunnison River.

With the primary purpose of ascertaining the actual prevalence of dental caries among persons native to the community, an examination of the 406 high school pupils (average age 15 years) was made in January 1945. Only 77 were found to be natives of the town itself. These 77 pupils showed an average of 10 plus caries each, with only one caries-free. The teeth lost among these 77 students because of dental caries was 0.818 each. None of this group of 77 pupils showed any trace of dental fluorosis (mottled enamel).

As the examination proceeded, 67 pupils, none of whom had been born or reared in the city of Montrose, presented typical examples of dental fluorosis. These pupils came from various other communities in which fluorosed enamel was known to occur. The 67 pupils with fluorosed enamel showed an average of only 1.7 caries per person, and only 27 were entirely free from dental caries. The loss of teeth in this group was found to average 0.179 per person.

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A considerable number of the 67 pupils with fluorosed enamel had been born and reared in an agricultural district adjacent to Montrose known as Spring Creek Mesa. Invariably the Spring Creek Mesa pupils with dental fluorosis had been reared on water from deep wells. The significant observation is that the pupils raised in these two districts - Spring Creek Mesa and the city of Montrose, just several miles apart - differed so markedly in relation to dental caries; this could not be attributed to anything other than their water supply.

The only conclusion that could be reached from the observations made was that the report which gave the fluorine content of the city water as 1.4 p.p.m. was in error and, as anticipated, it was established through a later analysis that the correct value for the fluorine content was 0.3 p.p.m. (Am. J. Pub. Health, Nov. '46 - Downs and McKay)

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The Infectiousness of Coccidioidomycosis: Coccidioidomycosis is an infectious disease caused by the fungus, Coccidioides immitis. The respiratory tract is the usual portal of entry. The fungus causes either a benign, self-limiting disease of the lung or a progressive, chronic, and malignant process which may spread from the lung to localize in any or all organs of the body. The disease is endemic in the San Joaquin valley, California, as well as in parts of Texas, Arizona, and New Mexico. With the training of troops in these states, and their subsequent demobilization, numerous soldiers harboring the fungus will return to all parts of the United States.

It has been universally reported that the disease is not contagious, there being no direct man-to-man or animal-to-man spread, and that there is, therefore, no reason for elaborate isolation. The general consensus is that the spherule or endospore-filled sporangium stage of the fungus found in animal tissue when outside of the body goes through a stage of development to produce mycelial threads and spores (chlamydospores), in which state it becomes infective by the respiratory route for humans and animals. Rodents have been considered reservoir hosts for the disease.

Through studies carried out in guinea pigs the authors were able to transmit the disease from man to animal and from animal to animal by bronchial instillations of spherules. Based upon these results it is concluded that primary or secondary coccidioidomycosis in humans should be considered contagious. (Science, Nov. 22, '46 - Rosenthal and Routien)

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Effect of Rubber Tubing Upon the Stability of Penicillin and Streptomycin Solutions: S. L. Cowan has reported the inactivating effect of synthetic rubber upon solutions of penicillin. Since no work upon this important problem has been reported in the United States, the authors investigated the suitability of several varieties of rubber for the parenteral administration of penicillin and streptomycin.

Solutions of penicillin and of streptomycin were placed in separate sterile three-foot lengths of the various samples of rubber tubing. For controls, the solutions were also placed in glass tubing. At the end of 6 and 24 hours, samples were withdrawn for assay.

The solutions of streptomycin were assayed by the filter-paper disc method with Bacillus subtilis as the test organism. The penicillin solutions were assayed according to directions given in "A tentative penicillin-sodium monograph" (Washington Conference, 17 February 1944).

Of 11 samples of synthetic rubber tested, 4 inactivated penicillin completely in 24 hours. Two other samples caused 64 and 84 per cent reductions in the activity of the penicillin during the same period. Of 5 samples of natural rubber tested, 1 pigmented sample inactivated penicillin completely in 24 hours. White surgical Koroseal caused a drastic reduction in penicillin activity, but black synthetic Koroseal caused only a moderate inactivation of the antibiotic.

Buna S rubber caused a 50 per cent reduction of penicillin activity in 6 hours. Other samples of synthetic rubber reduced the activity of penicillin from 20 to 30 per cent in the same period.

None of the samples of rubber tubing tested caused any reduction in the activity of streptomycin.

This study is not intended as a complete investigation of the effects of rubber upon antibiotics. It is evident, however, that for continuous drip procedures some attention must be given to the type of rubber used for the administration of penicillin. It is suggested that rubber tubing intended for hospital usage be checked for inactivating effects upon antibiotics and that acceptable tubing be appropriately designated. (Science, Nov. 22, '46 - Huelsebusch et al.)

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Eosinophilic Granuloma of Bone: A peculiar destructive granulomatous lesion of bone was first recognized and described independently in 1940 by

Otani and Ehrlich, and Lichtenstein and Jaffe. Lesions of similar type had previously been described by Finzi in 1929, Mignon in 1930, and Schairer in 1938. They did not, however, consider the lesion to be a distinct entity and referred to it as myeloma with prevalence of eosinophils, granulation tumor of bone, and osteomyelitis with eosinophilic reaction, respectively. Lichtenstein and Jaffe's denomination, "eosinophilic granuloma of bone," has been widely accepted. Up to 1 July 1945, 48 acceptable cases were recorded in the literature. To these are added the 5 reported in this paper, making a total of 53 published cases.

The sex of the patients was recorded in 43 instances; 36 were males and 7 were females. The age range was from six months to fifty-eight years. Thirty-four of the patients were under twenty years of age, and 20 were under ten years.

Nearly all bones proximal to the wrists and ankles were involved. Thirty-six patients had single lesions and in these the skull was involved in 36 per cent, and ribs and femurs in 16.6 per cent each. Ten patients had multiple lesions, with an average number of seven bones involved; in one case, reported by Farber, there were 25 lesions. In the group with multiple lesions, the ribs were involved in 33 per cent, vertebrae in 12.5 per cent, and the skull in 11 per cent.

A majority of the patients had mild to severe pain, swelling of the soft tissues, and tenderness over the site of the lesions, with a duration of from a few days to several months. Some of the lesions were incidental findings at autopsy or on roentgenograms made for other purposes. A few patients had mild systemic symptoms of fever, anorexia, lassitude, headache, and weight loss. Laboratory examination showed no abnormality other than slight leukocytosis and occasionally an eosinophilia of from 4 to 11 per cent. Roentgenographic examinations showed round, oval, or irregular areas of decreased density, usually from 1 to 4 cm. in diameter. The lesions produced expansion of the bone in 5 cases and perforation of the cortex in at least 5 cases. Periostitis was observed in 14 cases and 3 lesions had sclerotic margins.

The early lesions appear cystic at gross examination, containing soft, friable, yellowish-brown and red material. A variety of cells, including large numbers of eosinophils, are seen on microscopic examination, but the characteristic cell is a large mononuclear cell with granular cytoplasm. The mononuclear cells have vacuolated cytoplasm in intermediate stages of the disease and their appearance has been considered as indicating a relationship between eosinophilic granuloma, Letterer-Siwe disease, and Schueller-Christian's disease. Jaffe and Lichtenstein have suggested that the three conditions may be due to an unknown infectious agent, eosinophilic granuloma being the most benign and

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localized form and limited to bone. The authors state that case 3 of their 5 cases may represent a transition from eosinophilic granuloma to Letterer-Siwe disease, since there was lymph node involvement in addition to a lesion of the sternum.

Treatment by surgical excision, curettage, or irradiation has given good results in all previously reported cases. No death from the disease or attributable to the disease has been reported. Case 3 of the present series differs from others recorded in the literature in that mild symptoms of lassitude persist twenty-eight months after the onset. A mediastinal mass also persists in this patient, although high-voltage irradiation has been administered in dosages which, in other patients, have relieved the symptoms and promoted healing of the bone lesions. (Radiol., Nov. '46 - Dundon et al.)

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Effects of Fat in the Diet on Recovery in Infectious Hepatitis: A comparative study has been made of the effects of (1) a diet low in fat and high in protein and (2) a diet relatively high in fat and high in protein on the period required for recovery in 70 patients with infectious hepatitis in whom there was moderate to marked acute liver insufficiency.

No harmful effects were observed to follow the administration of a diet high in fat in patients in whom the intake of protein was kept correspondingly high. In fact, the diet high in fat appeared to have decided advantages over the diet low in fat with respect to the maintenance of an adequate caloric intake, particularly in the acute stages of the disease. With the former diet, weight loss was minimal in the acute stages of hepatitis and gain in weight maximal in convalescence. Added evidence of the superiority of the high fat, high protein diet was indicated by the results of serial tests of bromsulfalein retention which revealed normal levels for the patients on the high fat, high protein diet earlier than the group on the high protein, low fat regimen. (Am. J. Pub. Health, Nov. '46 - Hoagland et al.)

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Abstracts of Reports on Research Projects:

X-334
Rep. No. 4
30 Jul '46

A Note Dealing with the Vitamin B Content of Aedes Aegypti Mosquitoes.

The nutritional requirements of mosquito larvae in bacteria-free media have received considerable attention in regard to the essential growth factors, particularly those

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X-334 (Cont.)

for metamorphosis. Attempts to grow mosquitoes (starting with sterile eggs) in a completely synthetic sterile medium were unsuccessful in this laboratory. The larvae failed to pupate. Recently the essentiality of folic acid for the pupation of larvae has been established. However, in that study some unidentified factors from yeast were also used in the medium.

A sterile culture medium was prepared containing the essential amino acids (casein hydrolysate plus other amino acids), cholesterol, purines, pyrimidines, various salts, and all the known B vitamins (including folic acid, furnished by Lederle Laboratories), but it failed to support maturative metamorphosis of larvae developed from sterile eggs. It was believed that an analysis of the vitamin B content of the larvae and adult mosquito might offer some cue to the concentrations needed.

The microbiological method was chosen for the analysis of the vitamin content of the mosquitoes and larvae. The adult mosquitoes were killed with ether and weighed samples of mosquito aggregates were used for digestion. Aliquots of the different digestions were then taken for the analysis. The larvae were separated from their water medium, allowed to dry at room temperature on filter paper for two hours and then digestion samples were taken. The vitamins assayed were as follows: thiamine, riboflavin, nicotinic acid, pantothenic acid, pyridoxine, biotin, and folic acid. All analyses were performed in triplicate. The assay values obtained did not exceed a variation of 5 per cent.

Vitamin B Content of the Adult and Larvae of Aedes Aegypti

Vitamin	Micrograms/gram adult mosquito	Micrograms/gram mosquito larvae
Thiamine	15	11
Riboflavin	27	19
Nicotinic acid	52	51
Pantothenic acid	48	33
Pyridoxine	0.95	0.5
Biotin	1.7	0.9
L. casei factor	18	14

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X-334 (Cont.) The results indicate a surprisingly high concentration of folic acid in Aedes Aegypti mosquitoes. The adult mosquito also apparently has a greater concentration of the B vitamins per gram of tissue than the larvae. The weight of the adult mosquito may be assumed to be approximately 1 mg. (Nav. Med. Res. Inst., NNMC, Bethesda, Md. - Kozloff and Pijoan)

Note: Those interested in seeing a copy of the complete report should address their request to the Research Division, BuMed.

Opinions or conclusions contained in these reports are those of the authors. They are not to be construed as necessarily reflecting the views or the endorsement of the Navy Department. Reference may be made to those reports marked "Not Restricted" in the same way as to published articles noting authors, title, source, date, project number, and report number.

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Procurement and Use of Streptomycin: The Bureau of Medicine and Surgery is now in a position to change the method of procurement of streptomycin and to define more accurately the indications for its use.

Based upon the experience gained with the use of streptomycin in certain infections, and as reported upon by the National Research Council Committee on Chemotherapeutics and Other Agents, it is recommended for use in accordance with a directive issued by the Civilian Production Administration as follows:

Group I

Streptomycin is recommended for use in the following conditions:

1. All cases of tularemia.
2. All cases of H. influenzae infections:
   - Meningitis
   - Endocarditis
   - Laryngotracheitis
   - Urinary tract infections
   - Pulmonary infections
3. All cases of meningitis due to:
   - E. coli
   - Proteus vulgaris
   - Klebsiella pneumoniae
   - Aerobacter aerogenes
   - Pseudomonas aeruginosa
   - Salmonella infections (includes paratyphoid organisms)
4. All cases of bacteremia due to Gram-negative bacilli:
   - E. coli
   - Proteus vulgaris
   - A. aerogenes
   - Ps. aeruginosa
   - Klebsiella pneumoniae
5. Urinary tract infections due to:
   - E. coli
   - A. aerogenes
   - Proteus vulgaris
   - Klebsiella pneumoniae
   - H. influenzae
   - Ps. aeruginosa

Group II

Streptomycin has been found to be a helpful agent in the treatment of the following diseases but its position has not been definitely defined:

1. Peritonitis due to Gram-negative bacilli.
2. Pneumonia due to Klebsiella pneumoniae
3. Liver abscesses due to Gram-negative bacilli.
4. Cholangitis due to Gram-negative bacilli.
5. Infections due to penicillin-resistant but streptomycin-sensitive organisms involving the heart valves.
6. Tuberculosis.
7. Chronic pulmonary infections due to mixed Gram-negative flora.
8. Empyema due to Gram-negative organisms.

Group III

Streptomycin is of questionable value in the following conditions:

1. Typhoid fever.
2. Brucellosis.
3. Salmonella infections.

Group IV

Streptomycin is not effective in the following conditions:

1. Clostridial infections.
2. Malaria.
3. Rickettsial infections.
4. Infections with moulds and fungi.
5. Virus infections.

Contraindications to the Use of Streptomycin

It should be pointed out that while streptomycin may have an inhibiting effect on both Gram-positive as well as Gram-negative microorganisms, most strains of Gram-positive organisms are much more sensitive to penicillin than to streptomycin. Therefore, penicillin continues to be the drug of choice in the treatment of staphylococcic, streptococcic, and pneumococcic infections. Penicillin is also the drug of choice for gonococcal and meningococcal infections (Gram-negative). Occasionally an infection due to a Gram-positive organism may be resistant to penicillin and susceptible to streptomycin. In

such instances streptomycin should be used. The decision can be made by testing the infecting organism for resistance to both penicillin and streptomycin in vitro.

It should be remembered, therefore, that penicillin continues to be the drug of choice in all infections caused by penicillin-susceptible Gram-positive cocci, and in infections due to the gonococcus and meningococcus. Streptomycin is the drug of choice in bacillary infections caused by streptomycin-susceptible Gram-negative bacilli.

Toxicity

All patients who are treated with streptomycin should be watched carefully for various reactions. Streptomycin is not a homogeneous product and certain patients will develop signs of hypersensitivity or toxicity. The following reactions have been recorded:

1. Pain and tenderness at local site of injection.
2. Headache.
3. Fever.
4. Skin eruptions.
5. Tachycardia and fall in blood pressure.
6. Eighth nerve disturbances - i.e., vertigo, tinnitus, deafness.
7. Paraesthesias about the face.
8. Flushing of the skin.

When skin eruptions occur it is well to discontinue the drug. When patients receive streptomycin for three weeks, practically all of them develop vertigo which persists in varying degrees of severity for days or weeks after streptomycin is discontinued. It is most noticeable in ambulatory patients and there is some evidence that the vertigo is due to labyrinthine disturbances which are irreversible.

Streptomycin Resistance and Fastness

Many infections due to Gram-negative bacilli are extremely resistant to the action of streptomycin. One of the reasons for many clinical failures is the inability to give enough streptomycin to inhibit the growth of the infecting organism. Another reason for failures in treatment is due to the rapid development of resistance to streptomycin in vivo. That is, many organisms develop resistance to streptomycin with amazing rapidity even when maximally tolerated doses are given early in the course of therapy.

(Not Restricted)

It is recommended, therefore, that all organisms be tested for their sensitivity before the onset of treatment and that adequate amounts of streptomycin be given from the beginning of treatment. A sufficient concentration of streptomycin should be maintained in the tissues and in the urine to inhibit completely the growth of the infecting organisms.

Method of Preparing Streptomycin for Treatment

Streptomycin is supplied in ampules containing from 0.5 to 1.0 Gm. each. There are two salts in common use, streptomycin hydrochloride and streptomycin sulfate. They are both readily soluble in small amounts of sterile pyrogen free water or normal physiologic saline solution in concentrations of from 100 to 125 mg. per c.c. Streptomycin is relatively thermostable and neither the powder nor the solutions show any appreciable loss of potency at room temperature for periods of as long as a month. However, solutions not being used should be stored in the icebox.

1. For Intramuscular or Subcutaneous Injection:

The total volume of individual injections should be small. A small amount of 1 per cent procaine hydrochloride solution may be added to the solution to alleviate pain. The application of an ice bag at the site of injection may also decrease the pain.

2. For Intrathecal Injection:

From 20 to 50 or 100 mg. may be dissolved in from 5 to 10 c.c. of sterile salt solution for injection into the subarachnoid space every 24 hours.

3. For Intrapleural or Intraperitoneal Injection:

From 1/2 to 1 Gm. may be dissolved in from 20 to 50 c.c. of sterile salt solution for injection into the pleural or peritoneal cavity.

Methods of Administration of Streptomycin

There are three common methods of administering streptomycin, subcutaneous, intramuscular, and intrathecal. Intermittent intravenous administration has no advantage over the intramuscular method, and since it may produce disagreeable side reactions, this route of administration should be avoided. An intramuscular injection every three or four hours is the preferred method of administration. The gluteal, thigh, or deltoid muscles are best suited for these injections, and it is important to rotate the site of the injections.

Dosage

The dosage of streptomycin will vary from one patient to another depending on the type and severity of infection. The objective in every case is to bring the infection under control as quickly as possible because streptomycin-susceptible organisms sometimes develop resistance rapidly. Therefore, maximum doses should be used from the onset. It should be remembered that resistance may develop in spite of the use of maximally tolerated doses, and also that streptomycin is excreted promptly in the urine.

1. Tularemia. Dosage: from 240 mg. to 1 Gm. daily in divided doses of from 30 to 125 mg. intramuscularly every 3 hours for from 5 to 7 days depending upon the clinical course of the disease and the response to treatment.

2. H. influenzae meningitis. Dosage: from 0.5 to 1.0 Gm. daily in divided doses of from 50 to 125 mg. intramuscularly every 3 hours for from 5 to 7 days. Intrathecal injection of 50 mg. of streptomycin once daily for 7 days. In all cases, blood cultures, throat cultures, and spinal fluid cultures should be made daily. Complicating staphylococcal infections should be watched for in all cases.

3. Urinary tract infections. Dosage: from 1 to 3 Gm. daily in divided doses every 3 hours for from 5 to 7 days depending upon the type of infecting organism and the clinical response. Constitutional and local signs of infection may disappear without sterilization of the urine. Factors that interfere with the sterilization of the urine are obstruction to the free flow of urine, renal calculi, and the development of resistance of the infecting organism, or the appearance of new and resistant organisms. The more sensitive organisms are Proteus vulgaris, A. aerogenes, Klebsiella pneumoniae, and E. coli. The more resistant organisms are Ps. aeruginosa, species of Salmonella, and Streptococcus fecalis (enterococcus).

4. Bacteremia due to susceptible Gram-negative bacilli. Dosage: from 2 to 4 Gm. daily in divided doses intramuscularly every 3 hours for from 7 to 10 days depending upon the site of lesion, species of organism and response to therapy.

5. Peritonitis due to Gram-negative bacilli. Since peritonitis is a complex infection often due to a mixture of organisms some of which are sensitive to penicillin and others to streptomycin, it is difficult to assess the relative importance of streptomycin and other forms of therapy which are employed in a given case. In view of experimental studies on peritonitis in

(Not Restricted)

animals and the studies which have been carried out in man, there are reasons for believing that streptomycin is helpful. Dosage: from 2 to 4 Gm. daily in divided doses every 3 or 4 hours for from 5 to 10 days.

6. Liver abscess and cholangitis. Streptomycin is excreted in part in the bile, and for that reason it has been used in cases of liver abscess and cholangitis with varying results. When susceptible organisms are present, it may assist in inhibiting the infection. The dosage is the same as in peritonitis.

7. Pneumonia due to Klebsiella pneumoniae. Some strains of Klebsiella pneumoniae are extremely sensitive to the action of streptomycin. A few patients with acute cases of pneumonia have recovered. From 2 to 3 Gm. a day for from 5 to 10 days should be used. The cases of chronic infection of the lung by Klebsiella pneumoniae have not responded in a permanent fashion.

8. Chronic pulmonary infections due to a mixed bacterial flora. Streptomycin administered parenterally or by inhalation has proved of value in some patients with chronic pulmonary suppuration. When it is inhaled, concentrations of 50 mg. per c.c. may be used in a total amount of 500 mg. over a 24-hour period. Parenteral injections of from 1 to 3 Gm. a day in divided doses have been used.

9. Endocarditis. Occasional patients with bacterial endocarditis due to penicillin-resistant and streptomycin-sensitive organisms may recover temporarily following streptomycin therapy. The dosage should be from 2 to 4 Gm. daily in divided doses for a minimum period of from 3 to 4 weeks.

10. Empyema. The use of streptomycin locally in the treatment of empyema may end in the sterilization of the cavity. The injection of from 0.5 to 1.0 Gm. daily directly into the pleural cavity along with systemic treatment should be used in all cases.

Diseases in Which the Effect of Streptomycin is Questionable

1. Typhoid fever. From the results that have been obtained so far there is no evidence that streptomycin shortens the clinical course of typhoid fever. The dosage has been from 4 to 5 Gm. daily in divided doses administered intramuscularly every 3 hours for from 10 to 14 days.

2. Salmonella infections (systemic). So far the results have been inconclusive when 4 Gm. were given daily in divided doses intramuscularly every 3 hours for from 7 to 17 days.

(Not Restricted)

3. Acute brucellosis. The course of an acute attack of fever due to brucellosis is not appreciably shortened when 4 Gm. are given daily in divided doses intramuscularly every 3 hours for from 10 to 14 days.

In view of the amount of streptomycin now available to the Navy, the method of procurement and the limitations for its use are modified. Naval hospitals will now be permitted to procure streptomycin at the nearest naval medical supply depot by special requisition for diseases listed in Group I. The stocking of streptomycin is specifically prohibited. Requisitioning for the drug is to be made on a case basis only. Requisition by NavMed 4, by dispatch, speedletter, or air mail, as indicated, should state the type of case for which streptomycin is needed.

Requests for streptomycin for diseases listed in Group II should be addressed to Materiel Division, BuMed, indicating the type of case for which streptomycin is needed. The filling of such requests will depend on the stock status of streptomycin. The quantity of streptomycin available precludes its use in pulmonary tuberculosis. No issues can be made for those diseases listed in Groups III and IV.

Note: This announcement supersedes the articles which appeared in the Bumed News Letter, Volume 6, Number 7, of September 28, 1945, and Bumed News Letter, Volume 7, Number 6, of March 15, 1946.

--BuMed. Ross T. McIntire

Note: The study in which the above experience was gained and from which the above recommendations were formulated was made possible by grants-in-aid from eleven pharmaceutical and chemical companies to cover the costs of the streptomycin, and by the personal efforts of the members of the Committee and physicians cooperating in the investigation.

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(Not Restricted)

Opportunities for Full-Time and Part-Time Active Duty for Reserve Medical Officers and Pharmacists:

Full-Time Active Duty. The attention of Reserve medical officers and of pharmacists is invited to the opportunity to perform full-time active duty at one of the major naval air stations of the Naval Air Reserve Training Command or at one of the Naval Air Reserve Training Units (NARTU's) listed as follows:

(Not Restricted)

Present Vacancies (M.O.)	(H.C.)	Location
2	0	NAS, Atlanta, Ga.
1	1	NAS, Columbus, Ohio
1	0	NAS, Dallas, Texas
1	0	NAS, Glenview, Ill.
2	0	NAS, Grosse Ile, Mich.
0	0	NAS, Los Alamitos, Calif.
1	0	NAS, Memphis, Tenn.
2	0	NAS, Minneapolis, Minn.
2	1	NAS, New Orleans, La.
1	0	NAS, New York, N.Y.
0	0	NAS, Oakland, Calif.
2	1	NAS, Olathe, Kansas
2	1	NAS, Squantum, Mass.
2	1	NAS, St. Louis, Mo.
1	0	NAS, Willow Grove, Pa.
		Naval Air Reserve Training Units based at
1	0	NAS, Anacostia, D.C.
1	0	NAS, Jacksonville, Fla.
1	0	NAS, Miami, Fla.
0	0	NAS, Norfolk, Va.
1	0	NAS, San Diego, Calif.
1	0	NAS, Seattle, Wash.

Reserve medical officers and pharmacists who are interested in full-time active duty as a member of the stationkeeper staff at one of the stations or units listed above should initiate letters to the Bureau of Naval Personnel, via the Chief of Naval Air Reserve Training, Naval Air Station, Glenview, Illinois, and BuMed, listing three or four stations at which duty is desired in order of preference. Those Reserve medical officers who may desire full-time duty with one of the listed NARTU's must be flight surgeons or qualified aviation medical examiners. Personnel are desired in ranks not above that of commander in the Medical Corps.

Officers qualifying for the above billets are advised that every effort will be made to continue them in their assignments consistent with the needs of the Service. Certain of the above billets carry orders to duty involving flying for designated naval flight surgeons. Government quarters are available at many of the major naval air stations.

(Not Restricted)

Part-Time Duty. Naval flight surgeons and qualified aviation medical examiners of the Reserve who wish to affiliate themselves with either the Organized or Volunteer components of the Inactive Reserve composed of Naval and Marine air groups training at one of the Naval air stations or NARTU's listed should contact the Commanding Officer of the station or the NARTU at which the training unit is based. (Personnel Div., BuMed)

* * * * * * (Not Restricted)

Fellowships, Residencies, and Courses in Civilian Institutions Now Available: A recent review of the requests made for further Specialty Training in civilian institutions reveals that the list below of fellowships, residencies, and courses are available on the dates indicated. Requests are desired from medical officers of the regular Navy and, when possible, should reach BuMed at least one month prior to starting date. Applications may be made by dispatch and must contain an agreement not to resign during the course and to remain in the Navy for three years after completion of training.

Specialty	Institution	Type	Duration	Starts	Places
Anesthesia	Mayo Clinic (No previous experience or training necessary)	Course	6 Months	1-1-47	1
Oncology	Memorial Hosp, NYC (One year's surgical experience necessary)	Fellowship	12 Months	4-1-47	1
Pathology	Indiana University (First year level)	Residency	12 Months	1-1-47	1
Physical Medicine	Mayo Clinic (No previous experience or training necessary	Fellowship	12 Months	1-1-47	1
Psychiatry	Illinois Psychiatric Institute, Univ. of Illinois (Previous training and experience in neuropsychiatry required)	Fellowship	12 Months	1-1-47	1
Radiology	Univ. of Indiana (First year level)	Residency	12 Months	1-1-47	1
Surgery	Philadelphia General Hospital (Available only to officers who interned at this Hospital)	Residency	12 Months	Anytime	1
Surgery (Chest)	An Eastern Medical School (Final arrangements not complete)	Fellowship	12 Months	Anytime	1

(Not Restricted)

One (1) place in the 6-month course in Electro-encephalography at the National Naval Medical Center beginning 1 February 1947 is available. Applications are desired from medical officers of the regular Navy. No service agreement is required for this course. (Professional Div., BuMed)

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(Not Restricted)

"Mosquitoes of Okinawa and Islands in the Central Pacific": This 110-page booklet listed as NavMed 1055 was recently published. It presents in condensed form available information on the taxonomy (including several keys), distribution, bionomics and the relation to disease of the mosquitoes of Hawaii, Samoa, the Marshall Islands, the Caroline Islands, the Mariana Islands, and Okinawa. Drawings are based on camera lucida sketches.

Those interested may obtain copies through a letter addressed to the Bureau of Medicine and Surgery.

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(Not Restricted)

Control of Gastric Cancer: December 5 and 6 were set as the dates for a conference to be held at Billings Hospital, University of Chicago, to consider new methods of attack on gastric cancer. In making this announcement, Dr. Thomas Parran, Surgeon General, U.S. Public Health Service, explained that arrangements for the meetings were made by the Gastric Cancer Committee of the National Advisory Cancer Council.

This is the third conference on gastric cancer to be sponsored by the Council. Dr. George M. Smith of Yale University is chairman of the Gastric Cancer Committee. (Am. J. Pub. Health, Nov. '46)

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(Not Restricted)

Public Health Foreign Reports:

Disease	Location	Date	No. of Cases
Cholera	China, Anwhei Prov.	Aug. 11-Sept. 10, '46	833 (20 fatal)
	Chekiang Prov.	Aug. 21-Sept. 20, '46	411 (37 fatal)
	Honan Prov.	Aug. 21-Sept. 10, '46	297 (30 fatal)
	Hunan Prov.	Sept. 1-20, '46	371 (60 fatal)
	Kiangsu Prov., Shanghai	Sept. 11-30, '46	75 (12 fatal)
	Kwangtung Prov.	Aug. 21-Sept. 20, '46	225 (97 fatal)

Public Health Foreign Reports (Cont.):

Disease	Location	Date	No. of Cases
Cholera	Manchuria, Kirin Prov.	Aug. 1-31, '46	2,471 (1090 fatal)
Plague	Ecuador, Loja Prov.	September '46	5 (2 fatal)
Smallpox	China, Hong Kong	Oct. 19-26, '46	85
Typhus Fever	Ecuador	September '46	112 (14 fatal)
	Guatemala	August '46	95 (16 fatal)
(murine)	Philippine Islands, Manila	Sept. 15-21, '46	3

(Pub. Health Reps., Nov. 8, 15, and 22, '46)

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ALNAV 566 17 October 1946 (Not Restricted)

Subj: Certificates of Death

Instructions in BuMed Manual paragraphs 344 and 348 relative to submission of certificates of death are amended as follows:

A Certificate of Death (NavMed Form N) shall be prepared by the appropriate medical officer in each case of death of (a) active-duty Navy and Marine Corps personnel including Reserve personnel performing active or training duty with or without pay, (b) retired and inactive Fleet Reserve personnel, (c) personnel including Reserve personnel who die while continued on sick list beyond termination of active or training duty as the result of injury or disease incurred while performing active or training duty with or without pay, (d) all other deaths occurring on naval vessels or at naval stations. Appropriate notation as to active or inactive or training-duty status shall be entered on certificate of death under space for rank or rate. Length of service shall be reported under space for nationality.

--SecNav. James Forrestal

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ALNAV 592 14 November 1946 (Not Restricted)

Subj: Extended Potency Period of Fibrin Foam and Thrombin

Potency period of fibrin foam and thrombin JAN Stock No. 1-604-785 extended as follows:

For material previously stored at five degrees centigrade and continued to be so stored potency period extended three years. For material previously stored at room temperature potency period extended two years if stored below 5 degrees centigrade from now on. For material stored at room temperature and continued to be so stored potency period extended one year. Oldest dated material shall be used first.

--SecNav. John L. Sullivan

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Circular Letter 46-165 13 November 1946 (Not Restricted)

To: MedOfsCom, NavHosps (Continental Limits)

Subj: Personnel for Physical Training, Cancelation of BuMed Circular Letter concerning.

Ref: (a) BuMed CirLtr BUMED:WR:AZ over P11-1/P10-1, dtd 1 Oct 1945.

This letter from the Chief, BuMed cancels reference (a) which required that certain reports concerning personnel designated for conducting physical training be furnished.

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Circular Letter 46-166 15 November 1946 (Not Restricted)

To: All Naval Stations and Marine Corps Activities

Subj: Physical Inventory of Facilities re: Institution of the revised Plant Account System.

Refs: (a) SecNav ltr: M625/ERC:hke, Serial 138, dated 10 May 1946.
(b) SecNav ltr: M625/RHP:mm, Serial 281, dated 26 August 1946.
(c) BuMed ltr: Fa-HFM:ejb over L10-5/L11-2(044), dated 25 April 1944.
(d) BuMed ltr: Fa-HFM:ay over L10-5/L11-2(044), dated 15 February 1945.
(e) BuS&A Manual, Vol-6, Chapter 3.

Encls: 1. (SC) Facilities Inventory Handbook (NavEXOS P-406).
2. (HW) SecNav ltr: M625/ERC:hke, Serial 138, dated 10 May 1946.

This letter from the Chief of BuMed together with the two enclosures contains instructions relative to the physical inventory of facilities which is to be initiated as of 1 January 1947 in connection with instituting the revised Plant Account System.

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Circular Letter 46-167 19 November 1946 (Not Restricted)

To: MedOfsCom, NavHosps (Continental Limits)

Subj: Amputation cases, transfer of to amputation centers.

Ref: (a) BuMed CirLtr 45-77, 20 Mar 1945

This letter from the Chief of BuMed calls attention to the existing directive, reference (a), which requires that all patients who have had an arm or leg amputated be transferred as soon as it is practical for them to travel to either the U.S. Naval Hospital, Philadelphia, Pa., or the U.S. Naval Hospital, Mare Island, Calif. It is pointed out that in view of the possible early discontinuance of the special prosthetic shops at these two naval hospitals, it is particularly important to expedite the transfer of those patients specified in reference (a).

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Circular Letter 46-168 19 November 1946 (Not Restricted)

To: MedOfsCom, NavHosps (Continental)

Subj: Certificates for obtaining automobiles by disabled patients.

1. Preferential delivery of new automobiles to disabled patients, and the privilege granted certain patients to obtain a new automobile free of charge under Public Law 663, has been abused in some cases by persons obtaining two or more automobiles under the same authority. In an effort to prevent these abuses, it is directed that all certificates issued to patients for the purpose of obtaining preferential delivery or to receive an automobile under provisions of Public Law 663 be authenticated by the medical officer in command, and an entry to the effect that such certificate has been issued be made on the medical history sheet of the individual's health record.

2. It is further directed that appropriate records be maintained to obviate the possibility of an individual patient being issued more than one certificate.

--BuMed. Ross T. McIntire

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Circular Letter 46-169 20 November 1946 (Not Restricted)

To: All Ships and Stations

Subj: NAVMED-582 (Monthly Morbidity Report), revision of.

1. It is directed that on 1 January 1947, subject revision shall become effective. This revision of NAVMED-582 (Monthly Morbidity Report) has been effected in order to provide BuMed with monthly medical statistical data which conforms to postwar requirements.

2. Certain purely wartime titles have been eliminated and others having peacetime significance have been added.

3. Activities which have submitted subject report in the past will be forwarded an initial stock of forms NAVMED-582 (Rev. 9-46). NAVMED-582 (Rev. 9-46) are available at the nearest District Publications and Printing Office. Outdated forms NAVMED-582 (2-45) should be destroyed.

--BuMed. Ross T. McIntire

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Circular Letter 46-170 25 November 1946 (Not Restricted)

To: All Ships and Stations

Subj: BuMed Field Records Schedule, Change No. 2.

Ref: (a) BuMed Field Records Schedule, BuMed CirLtr 45-150; AS & SL Jan-June 1945, 45-646, p. 400.

1. The following change to reference (a) is effective immediately.

> Item 55 - Delete the sentence "Destroy except one in patient's jacket or clinical record when 1 year old" and add, "Retain copies filed in patient's jacket or clinical record and copies recording final physical examinations of personnel separated from the Naval Service. Destroy all other copies when 5 years old."

BuMed. W.J.C. Agnew

Circular Letter 46-171 26 November 1946 (Not Restricted)

To: All Ships and Stations JOINT LETTER

Subj: Pamphlet, "The Hospital Corps, United States Navy, A Commendation by the Secretary of the Navy" - Distribution of.

This letter from the Chief of Naval Personnel and the Chief of BuMed, jointly, calls attention to the subject pamphlet and directs (1) that complete distribution be effected among all who served at any time in the Hospital Corps since the beginning of World War II, and (2) that the matter of this commendation of the Hospital Corps by the Secretary of the Navy be widely publicized.

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Circular Letter 46-172 26 November 1946 (Not Restricted)

To: All Ships and Stations

Subj: Medical Stores Requisition, NavMed 4 - Preparation and Submission of.

Ref: (a) BuMed CirLtr 46-68 of 15 April 1946.

1. Paragraph 7(u) of reference (a) is modified to read "Value:- Enter standard unit price as listed in Price Supplement to BuMed Section of Catalog of Navy Material."

--BuMed. Ross T. McIntire

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ALNAV 601 23 November 1946 (Not Restricted)

Subj: Precaution in Disposition of Blood Plasma.

Press release in U.S. indicates large black market operations in American blood plasma in Shanghai. Under paragraph 11-F, Surplus Property Act 1944 amended by paragraph 8308.6-C of SPA Reg 8 it is illegal to dispose of as surplus, property donated by the American Red Cross without Red Cross prior approval. NPR and D Reg 4 BuMed control list also lists plasma for return to the United States. There is possibility that by bulk sale or in the sale of hospitals, as complete units, blood plasma has been declared surplus and sold without Red Cross approval. All commands concerned are therefore requested to make every effort to recover plasma and medical supplies sold as surplus without Red Cross approval stated above for return to the United States.

--SecNav. James Forrestal